Service Manual
for
Battery Control Center

P/N 82-E0071-00
(Ref. 81-1317)
June, 1999

Battery Control Box Operation

Charging Circuit

This function charges the coach battery from the engine alternator while driving, and charges the chassis battery from the landline converter when parked. When the engine is running, the system monitors the chassis battery voltage. When the voltage goes above 13.3 volts (DC) for approximately 30 seconds, the isolation relay is engaged, which charges the coach batteries. If the chassis/coach battery voltage decreases below 12.0 volts, the relay is opened. When the engine is shut off (no ignition signal) the isolator relay can remain closed for up to 60 minutes.

When the coach is parked, the system monitors the coach battery voltage. When it increases above 13.3 volts for 30 seconds, the isolation relay engages. The system then monitors the chassis battery voltage. When the battery voltage goes above the 13.8 volts and remains there for 30 minutes, the system then opens the isolation relay. If the chassis battery falls below the coach voltage or 13.8 volts, the system will again close. This cycle will repeat until both batteries remain at or above approximately 13.8 volts.

Troubleshooting

Problem

1. Coach or chassis battery does not charge.

The isolator relay may not be closing. Check 5 amp coach disconnect in line fuse (for location see drawing on second to last page). Verify that pin J2-4, Ignition signal has 12 volts present and that pin J2-6, Coach Disconnect signal has 12 volts present. If the signals are present, verify that the chassis battery voltage is above 13.3 volts, while operating the engine at a fast idle for at least 30 seconds. If the chassis battery voltage is below 13.3 volts, check the alternator. If above, measure the voltage across the two small isolation relay terminals. The voltage on the isolation relay terminals should be 12 +/- 4 volts when relay is closed. If the voltage across the two small isolation terminals is less than 8 volts when closed, with 12+ volts on the batteries, than replace the circuit board. If the voltage on the terminals is correct and there is **not** continuity across the two large isolation input lugs, than replace the isolation relay. (See picture for measurement locations)

2. Chassis battery voltage is draining down.

Verify isolation relay contacts are opening. Measure the voltage across the two small isolation relay terminals, which should be 12 +/- 4 volts if relay is closed, approximately zero volts if open. If relay is closed turn coach disconnect switch to off position, and relay should open within approximately 10 seconds. Measure the voltage on the small isolation relay terminals again and check the continuity across the two large isolation input lugs. If **not** open, Verify that J2-6, Coach Disconnect 12-volt signal is absent, replace the relay.

Auxiliary Start:

Auxiliary start is used to connect the chassis batteries to the coach batteries; in the event the chassis batteries voltage is too low to start the engine. This momentary dash switch applies 12 volts to the isolation relay coil, connecting the coach and chassis batteries together.

Problem:

1. Auxiliary start will not operate.

Verify 5-amp fuse for auxiliary start switch is not blown in front chassis fuse panel (See location Tag). If blown, replace fuse. Verify coach batteries are above 8 volts, please recharge. Verify that J2-6, Coach Disconnect 12-volt signal is present. Verify that J2-5, Auxiliary input 12-volt signal is present. Check for operation of isolation relay by measuring voltage on small isolation relay terminals, while applying "auxiliary" start switch. If voltage is proper, 12 +/- 4 volts and there is **not** continuity across the two large isolation input lugs, replace the isolation relay.

Solar Charger:

The standard solar panels are approximately 60 watts. These panels are capable of putting out up to 21 volts and 3+ amps of current. When the batteries are below 13.8 volts and there is adequate sun light, the solar controller will operate in the full charge mode, applying the full output of the panels to the batteries.

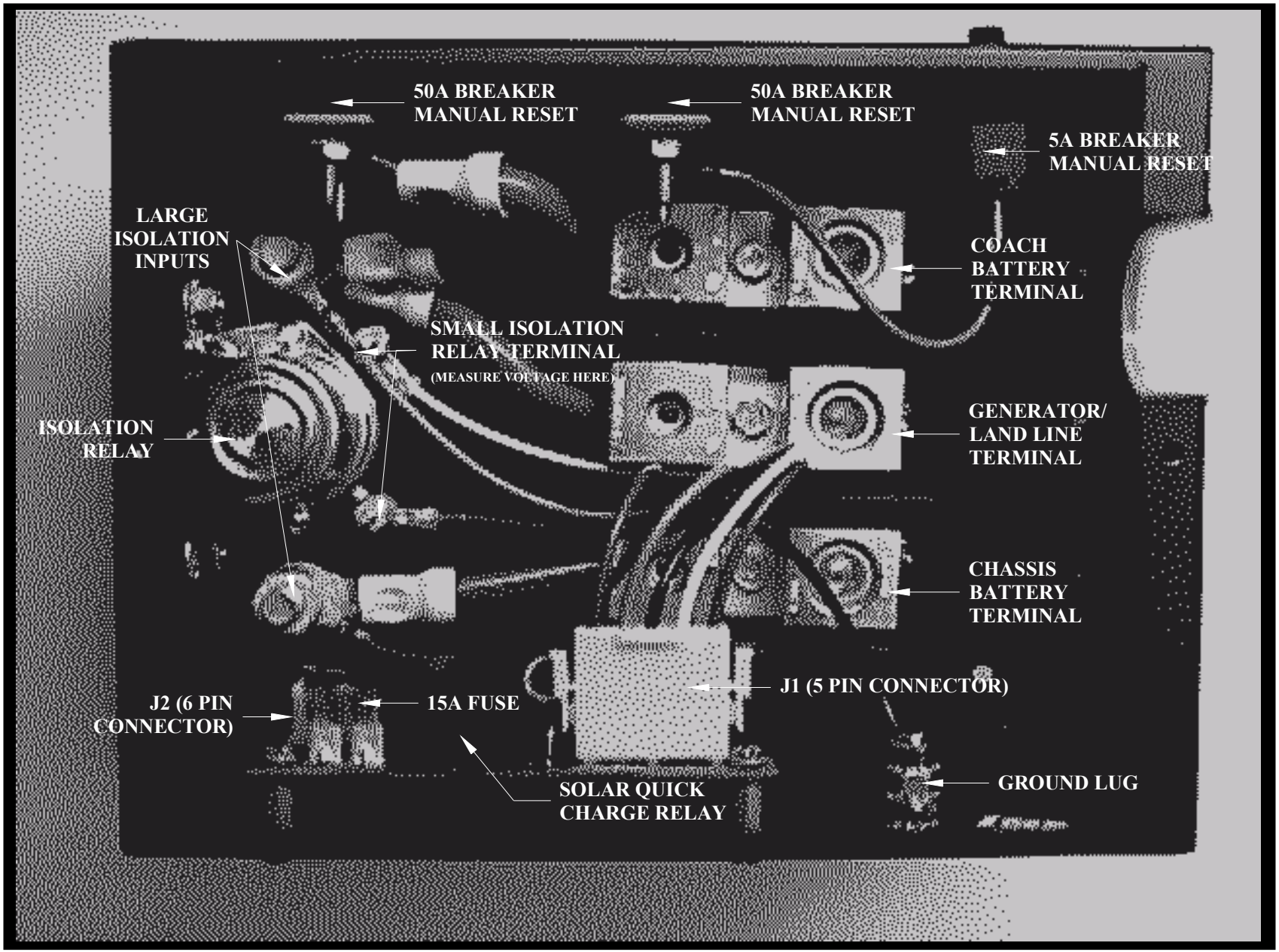
When the voltage on the batteries reaches 13.8 volts and the timer times out, the Solar charger will then turn off and remain open until the battery voltage decreases.

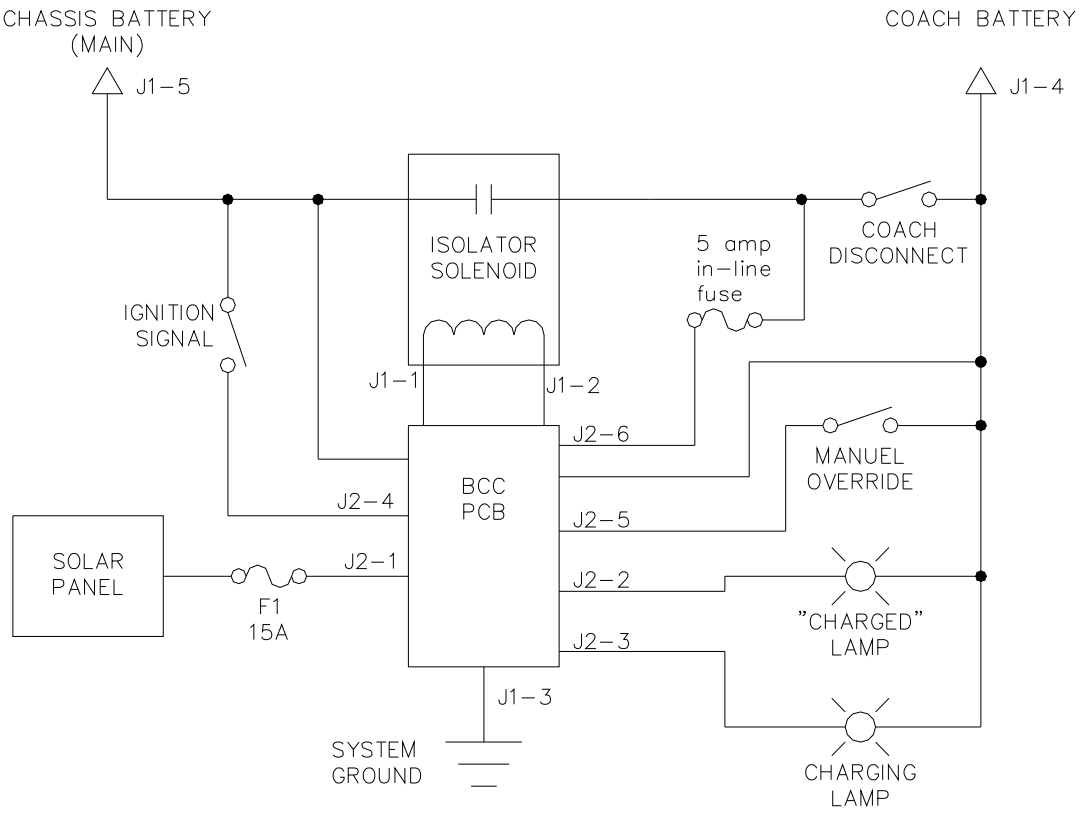
Problem:

Verify coach disconnect signal J2-6 is present for solar charger to operate. Verify J2-1 solar panel input is present.

Circuit Breakers:

There are two 50 Amp and one 5 Amp, Type III (Manual Reset), circuit breakers mounted in the box. All three breakers connect directly to the coach battery. The two 50 amp. breakers connect to the converter and the coach fuse panel, respectively. The 5 amp. breaker is connected to the refrigerator.


50A BREAKER
MANUAL RESET
50A BREAKER
MANUAL RESET
5A BREAKER
MANUAL RESET
LARGE
ISOLATION
INPUTS
COACH
BATTERY
TERMINAL
SMALL ISOLATION
RELAY TERMINAL
(MEASURE VOLTAGE HERE)
ISOLATION
RELAY
GENERATOR/
LAND LINE
TERMINAL
CHASSIS
BATTERY
TERMINAL
J1 (5 PIN CONNECTOR)
J2 (6 PIN
CONNECTOR)
15A FUSE
SOLAR QUICK
CHARGE RELAY
GROUND LUG



Plugs, Pins and Functions

J1 - 5 Pin in line, Mate-N-Lock

PIN	FUNCTION
1	Isolation Solenoid -
2	Isolation Solenoid +
3	Ground
4	Coach Battery +
5	Chassis Battery +

J2 - 6 Pin Matrix, Mate-N-Lock

PIN	FUNCTION
1	Solar Panel Input +
2	Charged LED -
3	Charging LED -
4	Ignition Signal
5	Manual Override
6	Coach Disconnect

POWER GEAR
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- Failure due to misapplication of product.
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- Overtime labor.
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